

parksii Setch. & Gardn., California; *Eryotrichia parksii* Setch. & Gardn., California; *Freycinetia parksii* Mart., Fiji; *Fucus parksii* Setch. & Gardn., California; *Gautieria parksiana* Zell. & Dodge, California; *Hydnangium parksii* Zell. & Dodge, California; *Hymenogaster parksii* Zell. & Dodge, California; *Hypoxylon parksii* Lloyd, Tahiti; *Iridophycus parksii* Setch. & Gardn., California; *Languas parksii* Gill., Fiji; *Loxogramme parksii* Copel., Fiji; *Lycopodium parksii* Copel., Fiji; *Maesa parksii* Gill., Fiji; *Melanogaster parksii* Zell. & Dodge, California; *Oleandra parksii* Copel., Fiji; *Pandanus odoratissimus* L. var. *parksii* Mart., Tonga; *Peridermium parksianum* Faull, California; *Polypodium parksii* Copel., Fiji; *Poria parksii* Murr., California; *Puccinia parksiana* Cumm., Fiji; *Salix parksii* Ball, California; *Spiranthemum parksii* Gill., Fiji; *Strigula (Melanothele) parksii* Ras. ex Sbarb., Cook Islands; and *Aglaia parksii* A. C. Smith, Fiji.

The Parkses became well-known and active members of the community in the Trinidad and Eureka area and many visitors enjoyed the hospitality of their pleasant home. With advancing age and increasing health problems they disposed of their home in 1953 and spent the remainder of their time in traveling, living in guest hotels and health resorts. Parks died after protracted illness at Calistoga, California, March 5, 1967. His wife, Susan Thew Parks, followed him in death on January 29, 1968. They are buried at Visalia, California. The University of California Herbarium owes much to the numerous contributions of Harold Ernest Parks.

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NEW RECORDS OF MYXOMYCETES FROM CALIFORNIA IV.

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The new records of slime molds listed in our last paper (Kowalski and Curtis, 1968) brought the total number of Myxomycetes recorded in print for California to 190. Since then, seven new species and two new records have been reported from the state (Kowalski, 1968a; 1968b; 1969a; 1969b; 1970). Ten new records are reported in this paper. This brings the total number of slime molds found in California to 209 species. All collections cited here have been deposited in the Herbarium of the University of California at Berkeley. Unless otherwise stated, the numbers are those of the authors, labeled K and C respectively. With the exception of *Diderma umbilicatum* Pers., the names of the organisms are those accepted by Martin (1949). This investigation was supported by National Science Foundation Grant GB-5799.

LICEACEAE

Licea parasitica (Zukal) Martin. Four collections, three on oak bark from Lower Bidwell Park, Chico, Butte Co., K 2342, Jan. 8, 1966,

K 9648, Dec. 22, 1966, *K 9739*, March 13, 1967, and one on decayed wood, Sutter Buttes, 700 ft. elev., Sutter Co., *K 5739*, Feb. 18, 1967. All four collections were made accidentally, i.e., they were not found in the field. In each case, the substrate upon which *L. parasitica* was growing was originally collected because it had another, larger myxomycetous species upon it. The minute sporangia of *L. parasitica* were discovered later in the laboratory while the substrate was being scanned with a stereoscopic microscope. There are only two species in the genus *Licea* that are sessile and dehisce in a circumscissile manner by a preformed lid, namely, *L. parasitica* and *L. kleistobolus* Martin. The sporangia of both species are similar in shape and size, being subglobose to discoid and 0.05–0.2 mm in diameter. They differ, however, in color and texture. The sporangia of *L. parasitica* are dark brown or black and have a thick horny wall at maturity, while those of *L. kleistobolus* are bright coppery-brown and have a membranous wall. *Licea parasitica* has been found as far west as Iowa and Texas and is considered rare. This, however, may be due to its small size and it probably occurs throughout the United States.

Tubifera ferruginosa (Batsch) Gmel. Two collections, both on decayed wood, MacKerricher Beach State Park, Mendocino Co., *C 428*, Jan. 26, 1967 and *C 1138*, Jan. 25, 1968. Although the pseudoaethalia in these collections are smaller than normal, measuring less than 1.0 cm in diameter, their identity is easily established. There are four known species in the genus and *T. ferruginosa* is separated from the other three by the lack of a pseudocapillitium, the sessile fruiting bodies and by having spores 6–8 μ in diameter. This is a common taxon, being known throughout the United States.

CRIBRARIACEAE

Cribraria microcarpa (Schrad.) Pers. Two collections, one developing in a damp chamber from wood collected in Muir Woods, Marin Co., by Victor Duran on Feb. 8, 1965, and one on decayed wood, 3 miles west of Paul Dimmick State Park, Mendocino Co., *K 8164*, April 10, 1968. The lack of a distinct basal cup, stalks more than six times the diameter of the sporangia, and the small sporangial size, less than 0.3 mm in diameter, separate this taxon from other members of the genus. The sporangia in these collections are, in fact, much smaller. The majority are about 0.1 mm in diameter. This is a common species, known from many collections throughout the United States. It has probably been overlooked in California until now because of its minute size.

Cribraria minutissima Schw. On decayed wood, Juniper Lake, Lassen Volcanic National Park, 6,700 ft. elev., Lassen Co., *K 3874*, July 22, 1966. This is another tiny species, the sporangia being 0.1–0.2 mm in diameter. It can be distinguished from *C. microcarpa* by the presence of a distinct basal cup which is often constricted at the apex and by

the shorter stalks. As mentioned above, in *C. microcarpa* the stalks are usually more than six times the diameter of the sporangia while in *C. minutissima* they are usually less than four times the diameter of the sporangia. This species is also widely distributed in the United States, but because of its small size, is not often collected.

ECHINOSTELIACEAE

Echinostelium minutum De Bary. Three collections, two on decayed wood, *K 5949*, Covered Bridge, Honeyrun Road, Butte Co., April 15, 1967, *K 7562*, 5 miles east of Mineral, 5,800 ft. elev., Tehama Co., May 15, 1966, and one on bark, Lower Bidwell Park, Chico, Butte Co., *K 9732*, Dec. 27, 1966. As was the case with the *Licea parasitica* collections mentioned above, these specimens were also found by accident in the laboratory while viewing the substrate under a stereoscopic microscope. Because of its small size, the sporangia being about 50 μ in diameter, most of the known collections of this species were made from moist chamber culture. Thus, these collections are valuable since they represent natural fruitings which are rarely made. Of the four known species in the genus, only *E. minutum* and *E. cribrarioides* Alex. have a capillitium. *Echinostelium minutum* can be separated from *E. cribrarioides* by the fact that it has a scanty capillitium with free, hooked ends and spores 7–8 μ in diameter, while *E. cribrarioides* has a well-developed capillitium which forms a complete net and spores 9–10 μ in diameter. Previously, the furthest known western locality of *E. minutum* in the United States was Texas. However, this taxon can probably be found in every state of the union, since any diligent damp chamber work will usually turn up this tiny species.

STEMONITACEAE

Stemonitis webberi Rex. Two collections, both on decayed wood, *K 1679*, Patrick's Point State Park, Humboldt Co., July 3, 1965, and *K 4381*, Lower Bidwell Park, Chico, Butte Co., Dec. 22, 1966. This taxon and *S. splendens* Rost. are very closely related. In general, the sporangial and spore characteristics are identical. The two taxa are separated on capillitial differences. The capillitium of *S. splendens* is purplish-brown and the meshes of the surface net are 20–50 μ in diameter. The capillitium of *S. webberi* has red metallic reflections and the meshes of the surface net are mainly 30–100 μ in diameter. As can be seen, these differences are slight and it is possible that both of these taxa simply represent different forms of the same species. *Stemonitis webberi* is known throughout the United States and its exclusion from the published reports from California may be due to some workers just considering it as a form of *S. splendens*.

Comatricha lurida Lister. On decaying leaves, Lower Bidwell Park, Chico, Butte Co., *C 578*, Feb. 16, 1967. The sporangia in this collection have a total height of 1.0–1.5 mm, a capillitium that arises mainly

from the apex of the columella and coarsely warted spores 8–10 μ in diameter. These features all fit the published descriptions for this taxon. There is one characteristic, however, which is atypical, and that is, several of the sporangia have pieces of the peridium remaining attached to the ends of the capillitium. In one sporangium the peridium is almost completely persistent, being fugacious only at the apex. This unusual feature is not found in any of the published descriptions for this taxon. It is simply stated that the peridium is fugacious or evanescent. Because this species can have a partially persistent peridium, but, more importantly, since most of the capillitium arises from the apex of the columella, perhaps this species and *C. elegans* (Racib.) Lister, which is similar to *C. lurida*, should be transferred to *Lamproderma*. This is the genus in the Stemonitaceae which contains species that have persistent peridia and a capillitium radiating from the apex of the columella. We believe these species are more closely related to *Lamproderma arcyriomena* Rost. and *L. biasperosporum* Kowalski than to any other species of *Comatricha*. However, since we do not have adequate material of either species, we do not plan to make the transfers at this time. According to Martin (1949), *C. lurida* is a rare species. In the United States it has only been reported from Iowa and New York.

PHYSARACEAE

Physarum leucopus Link. Five collections, all from Lower Bidwell Park, Chico, Butte Co., *C* 562, Feb. 3, 1967, *K* 4145, Dec. 10, 1966, and *K* 5227, Feb. 4, 1967 on decaying bark and *C* 128, Dec. 7, 1966, and *K* 2145, Nov. 21, 1965 on decayed wood. The sporangia in these collections all have small patches of white lime on the peridium and stalks that are white and distinctly calcareous. In general, these collections fit the published descriptions perfectly. While throughout the United States this is not a particularly common species, it is extremely abundant in the Sacramento Valley. We have made numerous collections of this taxon, but for the sake of brevity, we only list five here.

Physarum luteolum Peck. Two collections, both made on decaying bark, 2 miles west of Child's Meadows, 4,400 ft. elev., Tehama Co., April 16, 1966, *K* 2724 and 2748. The sporangia in these collections are sessile, crowded, brilliant yellow in color and have a single-layered peridium. This species is not common. Except for a listing by Hagelstein (1944) from Colorado, this species is only known from lower elevations east of the Mississippi River. It is thus surprising that the only known California collections are from the mountains. Our work has shown that, with few exceptions, species of Myxomycetes found in the mountains are not found in the lowland areas and vice-versa. Perhaps the montane California collections represent a different ecotype from the eastern lowland collections. On a morphological basis, however, there is no question that they represent the same species.

DIDYMIACEAE

Diderma umbilicatum Pers. Five collections, three on decayed wood, Butte Creek and Skyway, Butte Co., K 4469 and 4492, Dec. 27, 1966, K 5822, March 18, 1967, one on decaying *Eucalyptus* bark, Point Reyes Ranger Station, Marin Co., K 5148, Jan. 29, 1967, and one on decayed leaves, Sutter Buttes, 700 ft. elev., Sutter Co., K 7891, March 2, 1968. This species is also very common in the lowland areas of California. We have found it approximately 40 times, but only list five specimens here to conserve space. The exact taxonomic standing of this taxon varies with different authors. Both Lister (1925) and Hagelstein (1944) treat it as a variety of *Diderma radiatum* (L.) Mrogan. Martin (1949) simply placed it in synonymy with *D. radiatum*. We believe, however, that the differences which it exhibits from *D. radiatum* are distinct and consistent enough to warrant its retention as a separate species. The major differences between the two species are as follows: In *D. radiatum* the sporangia are gray to, more commonly, brownish or red-brown, the stalks are ochraceous to reddish brown and the sporangial wall is distinctly cartilaginous and dehisces in a stellate fashion. In *D. umbilicatum* the sporangia are usually white but may be cream-colored, but are never brown or red, the stalks are white or cream-colored and the cartilaginous nature of the sporangial wall can only barely be observed and it never dehisces in a stellate manner. In fact, except for a few cracks in the wall at the apex of the sporangium, dehiscence must be by external breakage. *Diderma umbilicatum* is apparently a rare taxon.

Although Lister (1925) states that it has been found in many of the United States, we do not have knowledge of any collections other than our own.

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